

Atty. Dkt. No. 200313138-1

REMARKS

This Reply is accompanied by a request for continuing examination (RCE) and is in response to the Final Office Action mailed on July 18, 2006 in which claims 19, 23, 25, 27-33 and 47 were allowed; in which claims 8, 10, 12, 18 and 44 were objected to and in which claims 1-7, 9, 11, 13-17, 34-37, 39-43 and 46 were rejected. With this response, claims 4, 14 and 44 are canceled; claims 1, 15-17, 33, 34, 37, 39 and 43 are amended; and claims 48-55 are added. Claims 1-3, 5-13, 15-19, 23, 25, 27-37, 39-43, and 46-55 are presented for reconsideration and allowance.

I. Amendment to the Specification

In response to an objection raised in the previous Office Action, the title was amended. The title incorrectly omitted a space between "heat" and "sink". In response, the title is amended to now correctly read --MULTI-HEAT SINK ARRANGEMENT --.

II. Objection to the Drawings

Section 1 of the Office Action objected to the drawings by asserting that the third device, the third heat sink, the third array of fins, the fourth device, the fourth heat sink on the fourth array of fins are not shown in the drawings. In response, claim 14 is canceled, rendering the objection moot.

III. Rejection of Claim 4 under 35 USC 112, First Paragraph

Section 2 of the Office Action rejected claim 4 under 35 USC 112, first paragraph. Claim 4 is canceled, rendering the rejection moot.

IV. Rejection of Claims 1-2, 4-7, 13, 15, 34-37, 39-43 and 46 under 35 USC 102(b) Based upon DiBene

Section 3 of the Office Action rejected claims 1-2, 4-7, 13, 15, 34-37, 39-43 and 46 under 35 USC 102(b) as being anticipated by DiBene II et al. US Patent 6,356,448. Claim 4 is canceled

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and claims 1, 15, 33, 37, 39 and 43 are amended. Claims 1-2, 5-7, 13, 15, 34-37, 39-43 and 46, as amended, overcome the rejection based upon DiBene.

A. Claim 1

Claim 1, as amended, recites a computing system which includes a second array of fins extending at least partially across and over a first array of fins, wherein the first array of fins includes consecutive fins that extend from the base in a first direction and that form a transverse channel therebetween extending in a second direction perpendicular to the first direction and having opposite transverse open ends. Support for this amendment is at least found in Figures 4 and 5 of the present disclosure. Thus, no new matter is added.

DiBene fails to disclose or suggest a second array of fins which extend at least partially across and over a first array of fins, wherein the first array of fins includes consecutive fins forming a transverse channel therebetween having opposite transverse open ends. The Office Action characterizes the material between plated through holes 168 of DiBene as "fins". However, even assuming, arguendo, that such could be properly characterized as "fins," the material between plated through holes 168 of DiBene do not provide consecutive fins that form a transverse channel therebetween having opposite open ends. Accordingly, claim 1, as amended, overcomes a rejection based on DiBene. Claims 2-3 and 5-18 depend from claim 1 and overcome the rejection for the same reasons.

B. Claim 34

Claim 34, as amended, recite a processor module which includes a first heat sink overlapping a power pod and a second heat sink extending at least partially across and over the first heat sink.

DiBene fails to disclose a first heat sink that overlaps a power pod and a second heat sink that at least partially extends across and over the first heat sink. The Office Action characterizes elements 106, 126, 128 and area 158 as a heat sink (hereafter "heat sink 158") and also refers to

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heat sink 142. However, heat sink 158 does not overlap a power pod or power supply 118. Heat sink 158 also does not extend over heat sink 142. Accordingly, claim 34, as amended, overcomes the rejection based upon DiBene.

C. Claim 37

Claim 37, as amended, recites a multi-device heat sink module which includes first means for dissipating heat emitted by the power supply while not substantially receiving heat from a processor and second means for dissipating heat emitted by the processor, wherein the second means extends at least partially across and over the first means.

DiBene fails to disclose a first means for dissipating heat emitted by a power supply while not substantially receiving heat from a processor and a second means for dissipating heat emitted by the processor that extends at least partially across and over the first means. As the entire purpose of heat sink 158 of DiBene is to dissipate heat from processor 108, it is clear that heat sink 158 cannot be characterized as the first means. However, since heat sink 158 does not extend over heat sink 142, heat sink 158 also cannot be characterized as the second means. Since heat sink 142 cannot be characterized as both the first means in the second means because it cannot extend over itself, claim 37, as amended, overcomes the rejection based DiBene.

H. Claim 39

Claim 39, as amended, recites a heat dissipating arrangement including a heat sink having fins thermally coupled to a first device that overlap and extend opposite to opposite sides of a second device.

DiBene fails to disclose a heat sink having fins thermally coupled to a first device that overlap and extend opposite to opposite sides of a second device. In contrast, neither fins 144 nor the material between plated through holes 168 (characterized by the Office Action as fins) overlap and extend opposite to opposite sides of a device. Accordingly, claim 39, as amended,

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overcomes the rejection based upon DiBene. Claim 40 depends from claim 39 and overcomes the rejection for the same reasons.

I. Claim 41

Claim 41 recites a first heat sink comprising a heat dissipating structure having fins configure to be thermally coupled to a first heat emitting device while extending at least partially around and on opposite sides of a second heat sink which is coupled to a second heat emitting device.

DiBene fails to disclose or suggest a heat sink having fins configure be thermally coupled to a first heat emitting device, were in the fins extend at least partially around and on opposite sides of a second heat sink thermally coupled to a second heat emitting device. In contrast, neither fins 144 nor the material between plated through holes 168 (characterized by the Office Action as fins) overlap opposite sides of the second heat sink.

In rejecting claim 41, the Office Action refers to Figure 1 of DiBene. However, nowhere does Figure 1 of DiBene disclose a first heat sink that extends at least partially around another heat sink. Heat sink 142 does not extend around heat sink 158. Likewise, heat sink 158 does not extend around heat sink 142. At most, heat sink 142 extends around power supply 118. Power supply 118 is not a heat sink. Accordingly, the rejection of claim 41 based on DiBene should be withdrawn.

J. Claim 42

Claim 42 recites a heat sink comprising at least one heat dissipating structure configured to be thermally coupled to a first heat emitting device while extending at least partially around and on opposite sides of a plurality of fins of a second heat sink thermally coupled to a second heat emitting device.

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DiBene fails to disclose or suggest a heat sink which extends at least partially around and on opposite sides of fins associated with another heat sink. Heat sink 142 of DiBene does not extend at least partially around and on opposite sides of the material between plated through holes 168 (characterized by the Office Action as fins). In rejecting claim 42, the Office Action asserts that heat sink 142 extends at least partially around opposite sides of a second heat sink and refers to Figure 3 of DiBene. However, it is clear from Figure 3 that heat sink 142 does not extend around fins of another heat sink. Even assuming, arguendo, that heat sink 158 could be characterized as having fins, it is clear that heat sink 142 does not extend around heat sink 158. Accordingly, the rejection of claim 42 should be withdrawn.

K. Claims 43

Section 7 of the Office Action indicated that claim 44 would be allowable if rewritten in independent form including all of the limitations of the basic claim and any intervening claims. In response, claim 44 is canceled with its limitations incorporated into basic claim 43. Accordingly, claim 43, as amended, overcomes rejection based on DiBene.

V. Rejection of claim 14 under 35 USC 103(a) Based upon DiBene

Section 4 of the Office Action rejected claim 14 under 35 USC 103(a) as being patentable over DiBene. Claim 14 is canceled, rendering the rejection moot.

VI. Rejection of Claims 3, 9 and 11 under 35 USC 103(a) Based on DiBene and Connors

Section 4 of the Office Action rejected claims 3, 9 and 11 under 35 USC 103(a) as being patentable over DiBene in view of Connors US Patent 6,626,233. Claims 3, 9 and 11 depend from claim 1 and overcome the reductions for the same reasons discussed above with respect to claim 1. Connors fails to satisfy the deficiencies of DiBene.

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VII. Rejection of Claims 16 and 17 under 35 USC 103(a) Based on DiBene and Brewer

Page 10 of the Office Action rejected claims 16 and 17 under 35 USC 103(a) as being unpatentable over DiBene in view of Brewer et al. US Patent 6,522,536. Claims 16 and 17 depend from claim 1 and overcome the rejection for the same reasons discussed above with respect to claim 1. Brewer fails to satisfy the deficiencies of DiBene.

VIII. Added Claims

With this response, Claims 48-55 are added. Claims 48-55 are presented for consideration and allowance.

A. Claims 48, 51, 52 and 53

Added claims 48 and 51-53 depend from claims 1, 34, 37 and 40, respectively, and are patentably distinct over the prior art of record for the same reasons discussed above with respect to claims 1, 34, 37 and 40, respectively. Claims 48 and 51-53 further recite that the first heat sink is sandwiched between the first device or processor and the second heat sink. Because the prior art of record fails to disclose this arrangement, claims 48 and 51-53 are presented for consideration and allowance.

B. Claim 49

Claim 49 depend from claim 1 and further recites that the second array of fins extend away from the second base in the first direction, wherein the second array of fins includes consecutive fins forming a transverse channel therebetween extending in a third direction perpendicular to the first direction and having opposite transverse open ends.

The prior art of record fails to disclose both first and second arrays of fins including consecutive fins forming a transverse channel therebetween extending in a third direction

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perpendicular to the first direction and having opposite transverse open ends. Thus, claim 49 is presented for consideration and allowance.

C. Claim 50

Claim 50 depends from claim 49 and further recites that the second heat sink extends at least partially across and over the first array of fins in a fourth direction perpendicular to the second direction and the third direction. Because the prior art to record fails to disclose such first and second heat sinks, claim 50 is presented for consideration and allowance.

D. Claim 54

Claim 54 depends from claim 41 and is patentably distinct over the prior or to record for the same reasons discussed above with respect to claim 41. Claim 54 further recites that the at least one heat dissipating structure having fins is configured to extend at least partially around and on opposite sides of a second heat sink having fins.

The prior art of record fails to disclose a first heat sink having fins extending at least partially around a second heat sink having fins. Thus, claim 54 is presented for consideration and allowance.

E. Claim 55

Section 7 of the Office Action indicated that claim 8 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. In response, claim 8 is rewritten in independent form as added claim 55 and includes all of the limitations of former base claim 1. Accordingly, claim 55 is presented for consideration and allowance.

IX. Conclusion

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After amending the claims as set forth above, claims 1-3, 5-13, 15-19, 23, 25, 27-37, 39-43, and 46-55 are now pending in this application.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 08-2025. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 08-2025. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 08-2025.

Respectfully submitted,

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